



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-0787; Directorate Identifier 2015-NE-10-AD; Amendment 39-18307; AD 2015-22-03]**

**RIN 2120-AA64**

**Airworthiness Directives; Pratt & Whitney Division Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Pratt & Whitney Division (PW) PW4164, PW4168, PW4168A, PW4164C, PW4164C/B, PW4164-1D, PW4168-1D, PW4168A-1D, PW4170, PW4164C-1D, PW4164C/B-1D, PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines including models with a “-3” suffix with a low-pressure turbine (LPT) 4<sup>th</sup> stage inner air seal (IAS), part number (P/N) 51N038, installed. This AD was prompted by the discovery, during routine overhaul of the LPT, of cracks in the barrel section of the LPT 4<sup>th</sup> stage IAS. This AD requires removal of the LPT 4<sup>th</sup> stage IAS, P/N 51N038, according to a prescribed schedule. We are issuing this AD to prevent failure of the LPT 4<sup>th</sup> stage IAS, which could lead to an uncontained IAS release, damage to the engine, and damage to the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this AD, contact Pratt & Whitney Division, 400 Main St., East Hartford, CT 06108; phone: (860) 565-8770; fax: (860) 565-4503. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call (781) 238-7125.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-0787; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Katheryn Malatek, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7747; fax: 781-238-7199; email: [katheryn.malatek@faa.gov](mailto:katheryn.malatek@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all PW PW4164, PW4168, PW4168A, PW4164C, PW4164C/B, PW4164-1D, PW4168-1D, PW4168A-1D, PW4170, PW4164C-1D, PW4164C/B-1D, PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines including models with a “-3” suffix with an LPT

4<sup>th</sup> stage IAS, P/N 51N038, installed. The NPRM published in the Federal Register on June 1, 2015 (80 FR 30963). The NPRM was prompted by nine occasions of discovering, during routine overhaul of the LPT, cracks in the barrel section of the LPT 4<sup>th</sup> stage IAS. The NPRM proposed to require removal of the LPT 4<sup>th</sup> stage IAS, P/N 51N038, according to a prescribed schedule. We are issuing this AD to prevent failure of the LPT 4<sup>th</sup> stage IAS, which could lead to an uncontained IAS release, damage to the engine, and damage to the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Support for the NPRM (80 FR 30963, June 1, 2015)**

The Boeing Company expressed support for the NPRM.

### **Request to Change Definitions**

United Airlines and Delta Airlines requested that the Definitions paragraph be changed. United Airlines requested we change the definition of LPT overhaul from "maintenance which involves disassembly of the LPT rotor module" to "when the LPT module is disassembled sufficiently to gain access to the LPT 4<sup>th</sup> stage rotor assembly (disk/blade/seal)." Delta Airlines requested we change the definition of an LPT overhaul to "when all disks in the rotor are removed from the engine and the blades are removed."

We agree that the definition of an LPT overhaul should be clarified. We changed the definition of an LPT overhaul to "An LPT overhaul is defined as when all disks in the rotor are removed from the engine and the blades are removed."

### **Request to Change Applicability**

Delta Airlines requested changing the applicability to include models with any dash number suffix.

We agree with the intent of this request. We changed the Summary, Discussion, and Applicability sections by adding “...including models with a “-3” suffix...” following the listed engine models as required.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

### **Costs of Compliance**

We estimate that this AD affects 72 engines installed on airplanes of U.S. registry. We also estimate that 9 of the engines will require replacement parts during shop visit, the pro-rated cost of these parts cost will be \$23,805 per engine, and compliance with this AD will require about 49 hours of labor per engine. The average labor rate is \$85 per hour. We also estimate that 63 of the engines will require replacement parts during LPT overhaul, the pro-rated replacement parts cost for these parts is \$43,545 per engine, and that these 63 engines will require 0 additional hours of labor per engine since the parts are already exposed during LPT overhaul. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$2,995,065.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by

prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2015-22-03 Pratt & Whitney Division:** Amendment 39-18307; Docket No. FAA-2015-0787; Directorate Identifier 2015-NE-10-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to:

(1) All Pratt & Whitney Division PW4164, PW4168, PW4168A, PW4164C, PW4164C/B, PW4164-1D, PW4168-1D, PW4168A-1D, PW4170, PW4164C-1D, and PW4164C/B-1D turbofan engines with a low-pressure turbine (LPT) 4<sup>th</sup> stage inner air seal (IAS), part number (P/N) 51N038, installed.

(2) All PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines including models with a “-3” suffix with an LPT 4<sup>th</sup> stage IAS, P/N 51N038, installed.

**(d) Unsafe Condition**

This AD was prompted by the discovery, during routine overhaul of the LPT, of cracks in the barrel section of the LPT 4<sup>th</sup> stage IAS which could, if not corrected, result in uncontained IAS release, damage to the engine, and damage to the aircraft. We are issuing this AD to prevent failure of the LPT 4<sup>th</sup> stage IAS, which could lead to an uncontained IAS release, damage to the engine, and damage to the airplane.

**(e) Compliance**

Comply with this AD within the compliance times specified, unless already done.

For the engines listed in paragraph (c)(1) of this AD:

(1) At each LPT overhaul after the effective date of this AD, remove from service the LPT 4<sup>th</sup> stage IAS, P/N 51N038.

(2) At each engine shop visit after the effective date of this AD, remove from service the LPT 4<sup>th</sup> stage IAS, P/N 51N038, if it has more than 10,900 cycles since new.

**(f) Installation Prohibition**

(1) Do not install any LPT 4<sup>th</sup> stage IAS, P/N 51N038, with more than 0 flight cycles on any engine listed in paragraph (c)(1) of this AD.

(2) Do not install on any engine listed in paragraphs (c)(2) of this AD, any LPT 4<sup>th</sup> stage IAS, P/N 51N038, which was previously installed on any engine listed in paragraph (c)(1) of this AD.

**(g) Definitions**

For the purposes of this AD:

(1) An LPT overhaul is defined as when all disks in the rotor are removed from the engine and the blades are removed.

(2) An “engine shop visit” is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine flanges (lettered flanges). The separation of engine flanges solely for the purpose of transportation without subsequent engine maintenance does not constitute an engine shop visit.

**(h) Alternative Methods of Compliance (AMOCs)**

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

**(i) Related Information**

For more information about this AD, contact Katheryn Malatek, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7747; fax: 781-238-7199; email: [katheryn.malatek@faa.gov](mailto:katheryn.malatek@faa.gov).

**(j) Material Incorporated by Reference**

None.

Issued in Burlington, Massachusetts, on October 21, 2015.

Colleen M. D'Alessandro,  
Directorate Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.

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